CLAIMS

What is claimed is:

1.   A method of encoding each picture in a sequence of pictures, said method comprising the steps of:

5   assigning a pre-decoder buffer removal time to said picture;

selecting, for said picture, a number of bits, wherein the time-equivalent of said number of bits is no greater than a difference based on said pre-decoder buffer removal time of said picture and an initial arrival time of said picture into a pre-decoder buffer; and

compressing said picture to generate said number of bits.

10   2.   The method of claim 1 further comprising the steps of:

allocating a first number of bits for compressing said picture and one or more number of bits for compressing one or more future pictures, wherein said future pictures are in said pre-decoder buffer at said pre-decoder buffer removal time of said current picture;

determining, based on said numbers of bits in said allocating step, which of said future

15   pictures will be in said pre-decoder buffer at said pre-decoder buffer removal time of said picture;

changing said first number of bits for compressing said picture to allocate a final number of bits for compressing said picture if said changing is needed to prevent pre-decoder buffer overflow or underflow; and

20   compressing said picture using said final number of bits.

3.   The method of claim 1 further comprising the steps of:

determining a first limit on a number of bits for compressing said picture and one or more number of bits for compressing one or more future pictures, wherein said future pictures are in

said pre-decoder buffer at said pre-decoder buffer removal time of said current picture; and

compressing said picture using a first number of bits, wherein said first number of bits complies with said first limit.

4.   The method of claim 3, wherein said first limit is an upper limit and said first

5   number of bits is not higher than said upper limit.

5.   The method of claim 3, wherein said first limit is lower limit and said first number of bits is not lower than said lower limit.

6.   The method of claim 3 further comprising the step of:

determining a second limit on a number of bits for compressing a current picture;

10   wherein said first limit is an upper limit and said second limit is a lower limit, and wherein said first number of bits is not higher than said upper limit and said first number of bits is not lower than said lower limit.

7.   The method of claim 2 further comprising the step of:

determining an upper limit and a lower limit on said first number of bits for compressing

15   said picture, wherein said first number of bits is not higher than said upper limit and said first number of bits is not lower than said lower limit.

8.   An encoder for encoding a picture in a sequence of pictures, said encoder comprising:

a compressor configured to compress said picture to generate a number of bits;

20   wherein said encoder is configured to assign a pre-decoder buffer removal time to said picture and to select, for said picture, said number of bits; and

wherein the time-equivalent of said number of bits is no greater than a difference based on said pre-decoder buffer removal time of said picture and an initial arrival time of said picture

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into a pre-decoder buffer.

9.   The encoder of claim 8, wherein said encoder allocates a first number of bits for compressing said picture and one or more number of bits for compressing one or more future pictures, wherein said future pictures are in said pre-decoder buffer at said pre-decoder buffer

5   removal time of said current picture;

wherein said encoder determines, based on said numbers of bits, which of said future pictures will be in said pre-decoder buffer at said pre-decoder buffer removal time of said picture;

wherein said encoder changes said first number of bits for compressing said picture to

10   allocate a final number of bits for compressing said picture if needed to prevent pre-decoder buffer overflow or underflow; and

wherein said compressor compresses said picture using said final number of bits.

10.   The encoder of claim 8, wherein said encoder determines a first limit on a number of bits for compressing said picture and one or more number of bits for compressing one or more

15   future pictures, wherein said future pictures are in said pre-decoder buffer at said pre-decoder buffer removal time of said current picture; and

wherein said compressor compresses said picture using a first number of bits, wherein said first number of bits complies with said first limit.

11.   The encoder of claim 10, wherein said first limit is an upper limit and said first

20   number of bits is not higher than said upper limit.

12.   The encoder of claim 10, wherein said first limit is lower limit and said first number of bits is not lower than said lower limit.

13.   The encoder of claim 10, wherein said encoder determines a second limit on a

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number of bits for compressing a current picture, and wherein said first limit is an upper limit and said second limit is a lower limit, and wherein said first number of bits is not higher than said upper limit and said first number of bits is not lower than said lower limit.

14.   The encoder of claim 9, wherein said encoder determines an upper limit and a

5   lower limit on said first number of bits for compressing said picture, wherein said first number of bits is not higher than said upper limit and said first number of bits is not lower than said lower limit.

15.   A computer software product for encoding each picture in a sequence of pictures, said computer software product comprising:

10   code for assigning a pre-decoder buffer removal time to said picture;

code for selecting, for said picture, a number of bits, wherein the time-equivalent of said number of bits is no greater than a difference based on said pre-decoder buffer removal time of said picture and an initial arrival time of said picture into a pre-decoder buffer; and

code for compressing said picture to generate said number of bits.

15   16.   The computer software product of claim 15 further comprising:

code for allocating a first number of bits for compressing said picture and one or more number of bits for compressing one or more future pictures, wherein said future pictures are in said pre-decoder buffer at said pre-decoder buffer removal time of said current picture;

code for determining, based on said numbers of bits, which of said future pictures will be

20   in said pre-decoder buffer at said pre-decoder buffer removal time of said picture;

code for changing said first number of bits for compressing said picture to allocate a final number of bits for compressing said picture if needed to prevent pre-decoder buffer overflow or underflow; and

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code for compressing said picture using said final number of bits.

17. The computer software product of claim 15 further comprising:

code for determining a first limit on a number of bits for compressing said picture and one or more number of bits for compressing one or more future pictures, wherein said future pictures are in said pre-decoder buffer at said pre-decoder buffer removal time of said current picture; and

code for compressing said picture using a first number of bits, wherein said first number of bits complies with said first limit.

18. The computer software product of claim 17, wherein said first limit is an upper limit and said first number of bits is not higher than said upper limit.

19. The computer software product of claim 17, wherein said first limit is lower limit and said first number of bits is not lower than said lower limit.

20. The computer software product of claim 17 further comprising:

code for determining a second limit on a number of bits for compressing a current picture;

wherein said first limit is an upper limit and said second limit is a lower limit, and wherein said first number of bits is not higher than said upper limit and said first number of bits is not lower than said lower limit.

21. The computer software product of claim 16 further comprising:

code for determining an upper limit and a lower limit on said first number of bits for compressing said picture, wherein said first number of bits is not higher than said upper limit and said first number of bits is not lower than said lower limit.